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09/909,581	07/20/2001	Nathan R. Brown	500200.02	3036

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EXAMINER

GRANT, ALVIN J

ART UNIT	PAPER NUMBER
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3723

DATE MAILED: 05/09/2003

8

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/909,581

Applicant(s)

BROWN, NATHAN R.

Examiner

Alvin J Grant

Art Unit

3723

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-59 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-59 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## DETAILED ACTION

### *Double Patenting*

1. **Claims 1-59** of this application conflict with **claims 1-59** of **Application Nos. 09/909,582 and 09/910,683**. 37 CFR 1.78(b) provides that when two or more applications filed by the same applicant contain conflicting claims, elimination of such claims from all but one application may be required in the absence of good and sufficient reason for their retention during pendency in more than one application. Applicant is required to either cancel the conflicting claims from all but one application or maintain a clear line of demarcation between the applications. See MPEP § 822.

2. **Claims 37-40, 42-48 and 50-53** of this application conflict with **claims 37-40, 42-48 and 50-53** of **Application No. 09/909,580**. 37 CFR 1.78(b) provides that when two or more applications filed by the same applicant contain conflicting claims, elimination of such claims from all but one application may be required in the absence of good and sufficient reason for their retention during pendency in more than one application. Applicant is required to either cancel the conflicting claims from all but one application or maintain a clear line of demarcation between the applications. See MPEP § 822.

3. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

**Claims 1 and 4-36** are provisionally rejected under 35 U.S.C. 101 as claiming the same invention as that of **claims 1, 4-13 and 60-72** of copending Application No.09366406. This is a provisional double patenting rejection since the conflicting claims have not in fact been patented.

4. Applicant is required to provide a demarcation between each of the Applications and to inform the Examiner as to what these demarcations are in terms of claimed limitations.

### ***Claim Rejections - 35 USC § 102***

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

6. **Claims 1, 4-7, 10-12, 17, 18, 21, 25, 26, 32-40, 42, 45, 46, 47, 48 and 50** are rejected under 35 U.S.C. 102(a) as being anticipated by Yu '699.

**Referring to claims 1, 4-7, 10-14, 23-26 and 32-36**, Yu discloses a CMP apparatus comprising a support member, and a flexible membrane adjacent to the support member, the membrane having a first portion with a first thickness and a second portion with a second thickness greater than the first thickness, the first portion of the membrane being aligned with a second part of the microelectronic substrate, the second part of the microelectronic substrate when the membrane engages the microelectronic substrate, the membrane has a first surface facing a generally flat surface of the support member and a second surface facing opposite the first surface toward the microelectronic substrate when the membrane engages the microelectronic substrate, the when the membrane engages the support member, the member has a generally circular platform shape and the first and second portions of the membrane are annular with the first portion disposed radially inwardly from the second portion; the second portions of the membrane are concentric; the membrane has a generally circular platform shape and the first and

Art Unit: 3723

second portions are annular with the second portion disposed radially inwardly from the first portion, the thickness of the membrane is approximately 0.030 inches, the ratio of the second thickness of the membrane to the first thickness of the membrane is less than approximately two; the first and second portions are adjacent to each other.

7. Referring to claims 37-40, 42, 45, 46, 47, 48 and 50, Yu discloses a **method** for planarizing a microelectronic substrate, comprising: biasing the microelectronic substrate against a planarizing medium with a flexible membrane to exert a first force on a first part of the microelectronic substrate and exert a second force greater than the first force on the second part of the microelectronic substrate; and moving at least one of the microelectronic substrate and the planarizing medium relative to the other to remove material from the electronic substrate; engaging the first part of the microelectronic substrate with a first portion of the flexible membrane having a first thickness; engaging the second part of the microelectronic substrate with a second portion of the flexible membrane having a second thickness greater than the first thickness; engaging a first part of the microelectronic substrate includes engaging a first annular part of the microelectronic substrate and engaging the second part of the microelectronic substrate includes engaging a second annular part of the microelectronic substrate disposed radially inwardly from the first annular part of the microelectronic substrate disposed radially outwardly from the first annular part of the microelectronic substrate (Figs.: 5-7); the membrane has a first surface facing toward the microelectronic substrate and a second surface facing generally opposite the first surface, further wherein biasing the microelectronic substrate against the planarizing medium includes biasing a generally flat support member against the second surface of the membrane; forming a membrane by providing a first ply of a membrane material at the first and second portions of the membrane and attaching a second ply of the membrane material to the first ply at the second portion of the membrane, moving the first part of the microelectronic substrate and the planarizing medium; moving at least one of the microelectronic substrate and planarizing medium relative to the other includes moving the first part of the microelectronic substrate and the planarizing medium at a first linear velocity relative to each other and moving the second part of the microelectronic substrate and the planarizing medium at a second linear velocity relative to each other, further wherein removing material from the microelectronic substrate includes

removing material from the first part of the microelectronic substrate at a first rate and removing material from the second part of the microelectronic substrate at a second rate approximately the same as the first rate (column 1, lines 42-49); and the membrane is the first of a first and second membrane, each membrane having a first portion with a first thickness and a second portion with a second portion with a second thickness, a ratio of the first thickness to the second thickness of the second membrane having a second value inherently different than the first value, further comprising selecting the first membrane from the first and second membranes.

### ***Claim Rejections - 35 USC § 103***

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

**Claims 2, 3, 8, 9, 15, 16, 19-22 and 27-31** are rejected as being unpatentable over Yu in view of Kitta '869.

Yu's **apparatus** is described above. Regarding claim 2, 15 and 16, the Yu **apparatus** does not specifically disclose a retainer coupled to the structure. Kitta discloses a retainer (14) coupled to the structure to restrict the motion of the membrane. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have coupled a retainer to the structure of Yu as taught by Kitta so as to restrict the motion of the membrane relative to the support.

Regarding **claims 3 and 20**, Yu does not disclose the membrane and the support member defining a gas tight volume but Kitta does. Kitta discloses a membrane and a support member defining at least approximately a gas tight volume and the membrane being inflatable from a collapsed position to an inflated position with at least part of the membrane spaced apart from the support when the membrane is inflated (Fig. 6a, 6b, column 4 lines 39-60) so as to regulate the pressure on the substrate. It would have

been obvious to one having ordinary in the art at the time the invention was made to have made a membrane and support member that define a gas tight volume as taught by Kita so as to regulate the pressure exerted on the substrate.

Regarding **claims 9 and 22**, Yu does not specifically disclose a membrane material made of silicone and neoprene (which is rubber). Kitta discloses a membrane material made of rubber. Furthermore it would have been obvious to one having ordinary skill in the art at the time the invention was made to have made the membrane of Yu out of silicone and neoprene since it has been held to be within the general skill of a worker in the art to select a material on the basis of its suitability for its intended use as a matter of obvious design choice. (In re Leshin 125, USPQ 416).

**Claim 19** is rejected as being unpatentable over Yu in view of Kitta in further view of Maveety '204.

The modified Yu's **apparatus** is described above. Yu as modified does not disclose a carrier in which the retainer is coupled to the support plate with threaded screws. Maveety discloses a wafer carrier in which the retainer is coupled to the support as a matter of design choice. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have coupled the retainer of the modified Yu to the support plate with threaded screws as taught by Maveety as a matter of obvious design choice.

**Claims 27-31** are rejected as being unpatentable over Yu in view of Kitta and Maveety and in further view of Hoffman '572.

The modified Yu apparatus does not disclose a planarizing medium that includes an elongated polishing pad wound on a supply roller and extending from the supply roller across the planarizing medium support to a take-up roller. Hoffman discloses a planarizing medium that includes an elongated polishing pad wound on a supply roller and extending from the supply roller across the planarizing medium support to a take-up roller as a matter of design choice. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have included a planarizing medium that includes an elongated polishing pad wound on a supply roller and extending from the supply roller across the planarizing

medium support to a take-up roller in the apparatus of the modified Yu as taught by Hoffman as a matter of design choice.

9. **Claim 44** is rejected under 35 U.S.C. 103(a) as being unpatentable over Yu.

Yu's **method** is described above. The Yu **method** does not specifically disclose forming the membrane by disposing a membrane material in a mold. However, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have formed the membrane of Yu by disposing the membrane material in a mold as a matter of obvious design choice.

**Claim 43 and 51-53** are rejected under 35 U.S.C. 103(a) as being unpatentable over Yu in view of Hoffmann '572 B1.

Yu's **method** as modified is described above. The modified Yu does not specifically disclose a planarizing medium that includes advancing the polishing pad from a supply roller to a take-up roller. Hoffmann discloses a CMP apparatus that uses a planarizing medium that includes advancing the polishing pad from a supply roller to a take-up roller so that clean pre-operative sections of the planarizing pad may be quickly submitted for used sections to provide a consistent surface for planarizing and/or cleaning the substrate. It would have been obvious to one having ordinary skill in the art at the time that the invention was made to have used a planarizing medium that includes advancing the polishing pad from a supply roller to a take-up roller as taught by Hoffmann so that clean pre-operative sections of the planarizing pad may be quickly submitted for used sections to provide a consistent surface for planarizing and/or cleaning the substrate.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alvin J Grant whose telephone number is (703) 305-3315. The examiner can normally be reached on Mon-Fri 8:00-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Joseph J Hail can be reached on (703) 308-2687. The fax phone numbers for the organization where this



Art Unit: 3723

application or proceeding is assigned are (703) 305-3579 for regular communications and (703) 305-3588 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-1184.

ajg  
May 2, 2003

A handwritten signature in black ink, appearing to read "Joseph J. Hail, III". The signature is stylized with a large, looped initial "J" and a cursive "Hail".

Joseph J. Hail, III  
Supervisory Patent Examiner  
Technology Center 3700